

AD-A100 556 ARMY ELECTRONICS RESEARCH AND DEVELOPMENT COMMAND WS--ETC F/G 4/2
19304A MLRS, MISSILE NUMBERS V02-001, V01-003, V01-004, ROUND N--ETC(U)
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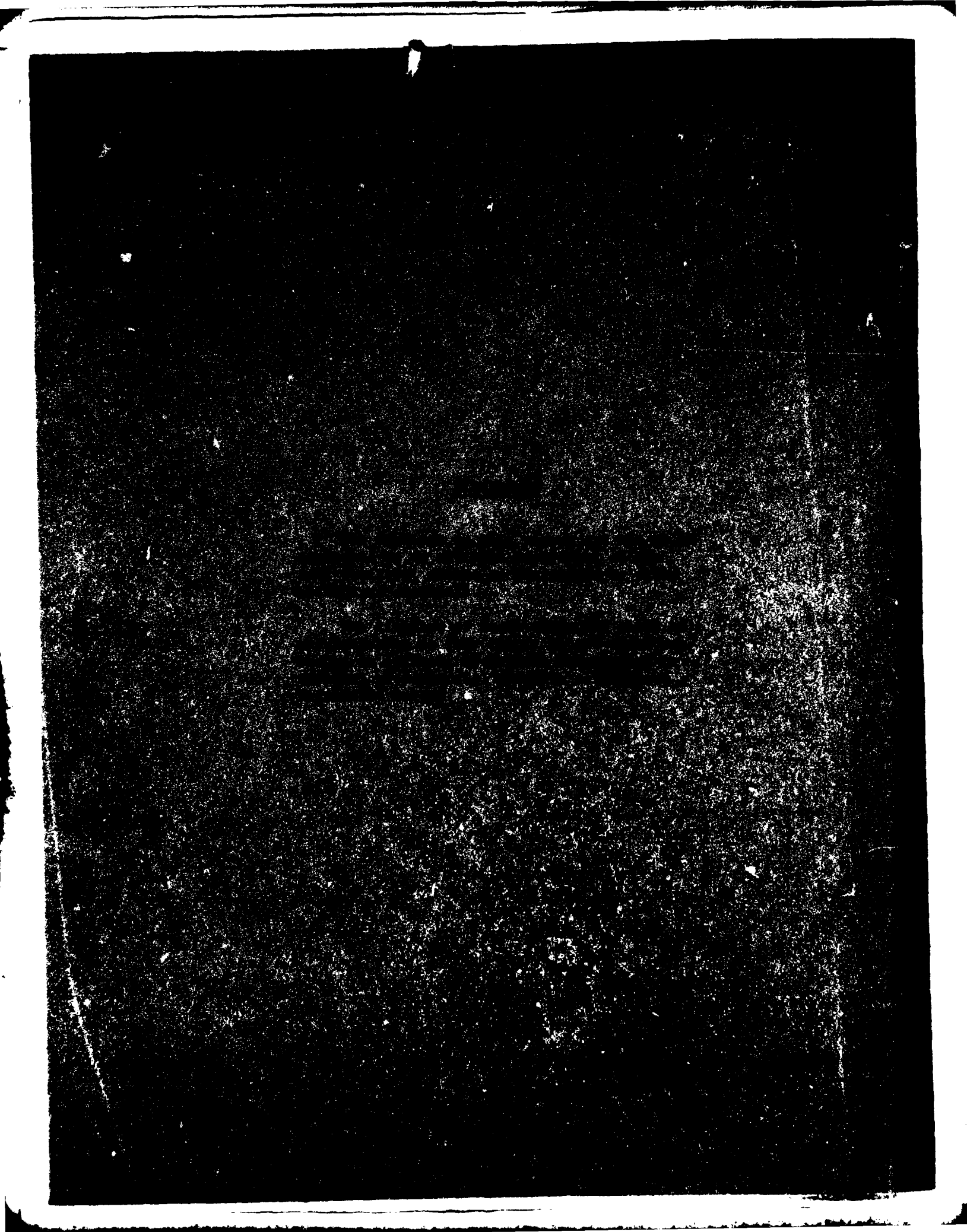
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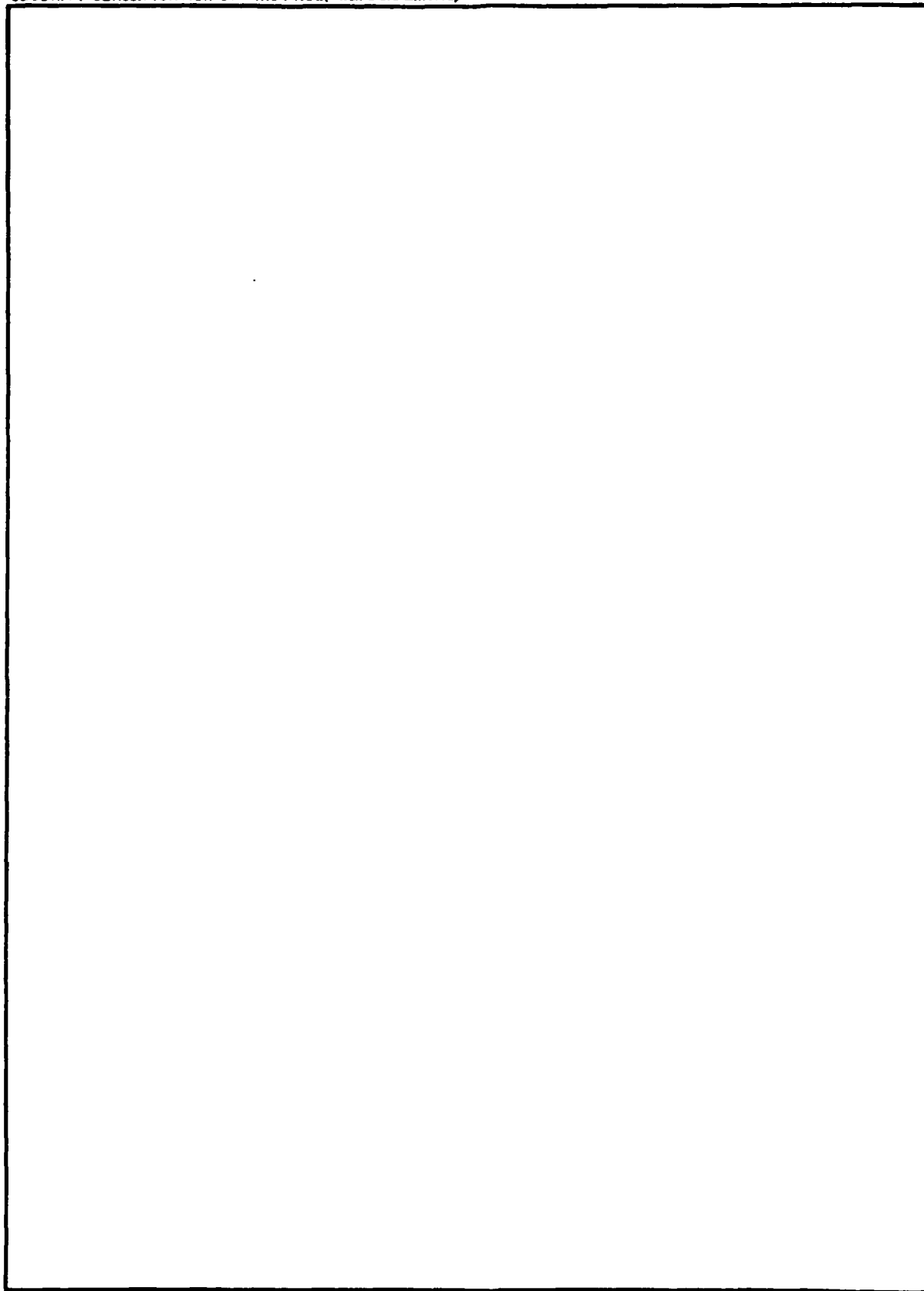
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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Meterological data gathered for the launching of the 19304A MLRS, Missile Numbers V02-001, V01-003, and V01-004, Round Numbers V-143/MD-10, V-144/MD-11, and V-145/MD-12 presented in tabular form.		

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)



SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

CONTENTS

	PAGE
INTRODUCTION-----	1
DISCUSSION-----	1
MAP-----	2
TABLES:	
1. Surface Observations taken at 1037 MDT at LC-33-----	3
2. Anemometer-Measured Wind Speed and Direction, LC-33 Fixed Pole, taken at 1037 MDT-----	4
3. Anemometer-Measured Wind Speed and Direction, Tower Levels 1, 2, 3, and 4, taken at 1037 MDT-----	4
4. LC-36 and NICK T-Time Pilot-Balloon Measured Wind Data---	5
5. Aiming and T-Time Computer Met Messages-----	6
6. WSD Significant Level Data at 0730 MDT-----	7
7. WSD Upper Air Data at 0730 MDT-----	8
8. WSD Mandatory Levels at 0730 MDT-----	10
9. LC-37 Significant Level Data at 0830 MDT-----	11
10. LC-37 Upper Air Data at 0830 MDT-----	12
11. LC-37 Mandatory Levels at 0830 MDT-----	14
12. WSD Significant Level Data at 0930-----	15
13. WSD Upper Air Data at 0930 MDT-----	16
14. WSD Mandatory Levels at 0930 MDT-----	18
15. LC-37 Significant Level Data at 1037 MDT-----	19
16. LC-37 Upper Air Data at 1037 MDT-----	20
17. LC-37 Mandatory Levels at 1037 MDT-----	22

INTRODUCTION

19304D MLRS, Missile Numbers V02-001, V01-003, and V01-004, Round Numbers V-143/MD-10, V-144/MD-11, and V-145/MD-12, were launched from LC-33, White Sands Missile Range (WSMR), New Mexico, at 1036:39, 1036:43, and 1036:48 MDT, 19 May 1981. The scheduled launch times were 1030, 1030:04.5, and 1030:09.

DISCUSSION

Meteorological data were recorded and reduced by the White Sands Meteorological Team, Atmospheric Sciences Laboratory (ASL), White Sands Missile Range, New Mexico. The data were obtained by the following methods:

1. Observations

a. Surface

(1) Standard surface observations to include pressure, temperature ($^{\circ}\text{C}$), relative humidity, dew point ($^{\circ}\text{C}$), density (gm/m^3), wind direction and speed, and cloud cover were made at the LC-33 Met Site at T-0 minutes.

(2) Anemometer data were provided from existing pole-mounted and tower-mounted anemometers at LC-33. Monitor of wind speed and direction from one anemometer was also provided in the launch control room.

b. Upper Air

(1) Low level wind data were obtained from RPTS T-9 pibal observations at:

SITE AND ALTITUDE

LC-36 2 KM
NICK 2 KM

(2) Air structure data (rawinsonde) were collected at the following Met Sites.

SITE AND TIME

WSD 0730 MDT
LC-37 0830 MDT
WSD 0930 MDT
LC-37 1037 MDT

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Justification	
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Distribution/	
Availability Codes	
Dist	Avail and/or Special
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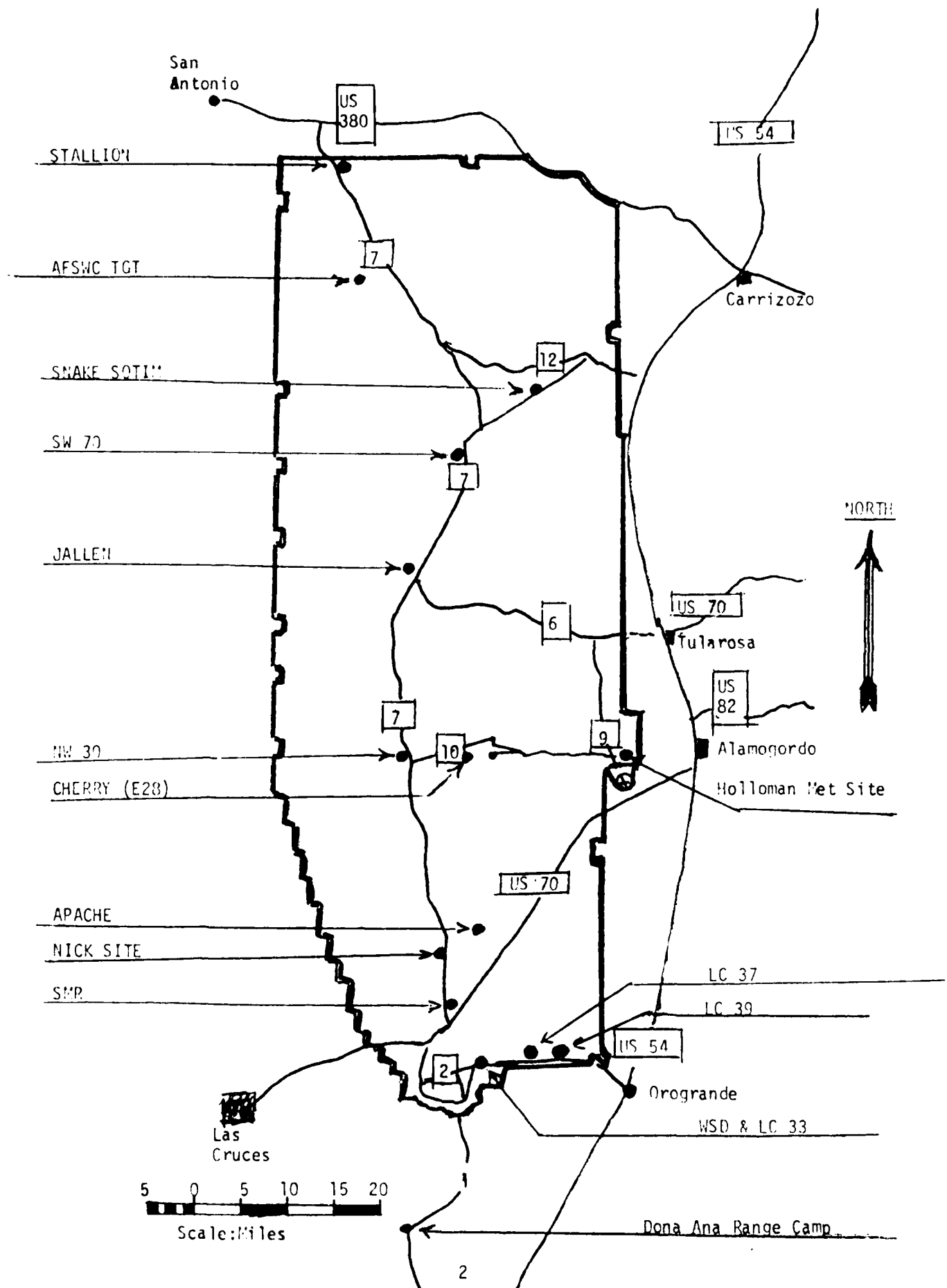


TABLE 1. Surface Observations taken at 1037 MDT,
19 May 1981, at LC-33, 19304A MLRS,
Missile No. V02-001, V01-003, V01-004,
Round No. V-143/MD-10, V-144/MD-11,
V-145/MD-12.

ELEVATION	3983.00	FT/M
PRESSURE	882.5	MB
TEMPERATURE	18.9	°C
RELATIVE HUMIDITY	38	
DEW POINT	4.2	°C
DENSITY	1047	GM/M ³
WIND SPEED	10	KTS
WIND DIRECTION	155	DEGREES
CLOUD COVER	CLEAR	

TABLE 2

LC-33 FIXED POLE ANEMOMETER MEASURED WINDS

1037 MDT

19 May 1981

POLE #1 X485,874.29 Y185,958.90 H4018.74 38.7 ft. AGL			POLE #2 X485,874.93 Y186,012.00 H4033.57 53.0 ft. AGL			POLE #3 X485,877.2 Y186,115.46 H4063.92 62.6 ft. AGL		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
T-30	140	12	T-30	150	09	T-30	153	09
T-20	119	11	T-20	127	09	T-20	130	09
T-10	136	10	T-10	141	09	T-10	153	10
T0.0	132	12	T0.0	129	10	T0.0	166	09
T+10	146	13	T+10	142	11	T+10	153	13

TABLE 3

LC-33 METEOROLOGICAL TOWER ANEMOMETER MEASURED WINDS (202 FT TOWER)

LEVEL #1, 12 FEET X484,982.64, Y185,057.73, H3923.00 (base)			LEVEL #2, 50 FEET X484,982.64, Y185,057.73, H3923.00 (base)		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
T-30	159	15	T-30	151	17
T-20	145	13	T-20	151	16
T-10	150	15	T-10	152	16
T0.0	149	17	T0.0	149	16
T+10	153	10	T+10	152	15

LEVEL #3, 102 FEET X484,982.64, Y185,057.73, H3923.00 (base)			LEVEL #4, 202 FEET X484,982.64, Y185,057.73, H3923.00 (base)		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
T-30	151	19	T-30	142	18
T-20	147	17	T-20	142	17
T-10	147	17	T-10	141	16
T0.0	146	15	T0.0	139	17
T+10	145	15	T+10	142	17

TABLE 4

T-TIME PILOT-BALLOON MEASURED WIND DATA

DATE 19 May 1981

SITE: LC-36
 TIME: 1037 MDT
 WSTM COORDINATES:
 X= 504,465.56
 Y= 190,780.55
 H= 4040.71

SITE: NICK
 TIME: 1045 MDT
 WSTM COORDINATES:
 X= 470,734.56
 Y= 255,775.64
 H= 4126.57

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS	LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE	155	09	SURFACE	150	10
150	157	09	150	185	18
210	148	11	210	175	22
270	154	13	270	170	20
330	154	14	330	175	15
390	155	15	390	165	18
500	149	14	500	165	20
650	143	17	650	175	21
800	139	22	800	175	22
950	145	16	950	160	25
1150	148	10	1150	160	21
1350	165	17	1350	180	18
1550	178	17	1550	200	11
1750	193	10	1750	205	08
2000	192	11	2000	MISG	

Wind data obtained from RAPTS T-9 radar Tracked Pilot-Balloon observation.

AIMING AND T-TIME MET MESSAGES
19 May 1981

WSD 0730 MDT
METCM1324064
191350122882
00329005 28910882
01302009 28790872
02245013 28520846
03238023 28350806
04313018 28350759
05382014 28280715
06411015 27910673

LC-37 0830 MDT
METCM1324063
191450124881
00249009 29090881
01237013 28830871
02225018 28570845
03234022 28350806
04302017 28340759
05372011 28290714
06383014 27900672

WSD 0930 MDT
METCM1324064
191530122983
00213018 29170883
01258027 29040872
02240016 28740847
03257018 28370807
04298016 28290760
05355012 28350716
06356016 27960674

LC-37 1037 MDT
METCM1324063
191660124881
00196008 29370881
01190020 29180870
02244014 28910845
03254015 28520806
04308017 28470759
05343013 28380715
06337020 27950673

STATION ALTITUDE 3989.00 FEET MSL
 19 MAY 81 0730 HRS MDT
 ASCENSION NO. 345

SIGNIFICANT LEVEL DATA

1390020345
 WHITE SANDS

TABLE 6

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE		REL. HUM. PERCENT
		AIR DEGREES	DEWPOINT CENTIGRADE	
882.1	3989.0	15.1	5.0	44.0
850.0	5013.3	11.4	.2	46.0
809.4	6351.3	9.1	-2	52.0
771.6	7656.7	10.5	-2.5	40.0
743.0	8686.9	8.8	-5.1	37.0
733.6	9034.0	10.3	-0.1	31.0
700.0	10310.7	8.2	-0.3	35.0
651.2	12254.1	3.2	-8.5	42.0
624.2	13377.2	.5	-8.4	51.0
598.4	14487.0	-1.4	-19.8	23.0
500.0	19092.5	-12.8	-30.5	21.0
464.8	20907.4	-17.5	-35.0	20.0
441.0	22197.7	-19.3	-38.1	17.0
400.0	24557.3	-25.2	-42.5	18.0
382.6	25617.1	-26.7	-44.3	17.0
341.2	28303.2	-33.0	-49.1	18.0
321.6	29661.0	-37.2		

STATION ALTITUDE 3989.00 FEET MSL
19 MAY 81 0730 HRS MDT
ASCENSION NO. 345

UPPER AIR DATA
1390020345
WHITE SANDS

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

TABLE 7

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	SPEED KNOTS	INDEX OF REFRACTION
3989.0	882.1	15.1	3.0	44.0	1062.6	662.5	185.0	5.1	1.000271
4000.0	881.7	15.1	2.9	44.0	1062.3	662.4	184.4	5.1	1.000271
4500.0	865.9	13.3	1.6	45.0	1050.1	660.3	164.2	7.3	1.000266
5000.0	850.4	11.4	.2	46.0	1038.1	658.1	154.1	10.0	1.000260
5500.0	835.0	10.6	.1	48.2	1022.4	657.1	148.3	12.8	1.000257
6000.0	819.9	9.7	-.1	50.4	1006.9	656.1	142.7	15.7	1.000253
6500.0	805.0	9.3	-.4	50.6	990.2	655.6	142.2	18.7	1.000249
7000.0	790.4	9.8	-1.2	46.0	970.5	656.2	148.2	18.9	1.000243
7500.0	776.0	10.3	-2.2	41.4	951.2	656.8	157.5	18.5	1.000236
8000.0	762.0	9.9	-3.4	39.0	935.4	656.2	167.0	18.6	1.000231
8500.0	748.1	9.1	-4.6	37.5	921.3	655.2	176.7	16.8	1.000226
9000.0	734.5	10.2	-5.9	31.6	901.4	656.4	188.9	15.2	1.000219
9500.0	721.2	9.5	-6.1	32.5	886.9	655.7	203.0	14.4	1.000216
10000.0	708.0	8.7	-6.2	34.0	873.3	654.7	212.2	14.4	1.000213
10500.0	695.1	7.7	-6.5	35.7	860.4	653.6	220.9	14.6	1.000210
11000.0	682.3	6.4	-7.0	37.5	848.5	652.0	227.1	15.5	1.000207
11500.0	669.7	5.1	-7.6	39.3	836.7	650.5	225.9	17.2	1.000203
12000.0	657.4	3.9	-8.1	41.1	825.2	649.0	225.0	19.0	1.000200
12500.0	645.2	2.6	-8.4	44.0	813.5	647.5	225.0	20.7	1.000197
13000.0	633.1	1.4	-8.4	47.9	801.8	646.1	227.4	22.5	1.000195
13500.0	621.3	.3	-9.4	47.9	790.1	644.8	229.4	24.3	1.000191
14000.0	609.6	-.6	-10.0	35.3	778.1	643.6	231.6	25.8	1.000184
14500.0	598.1	-1.4	-10.8	23.0	766.2	642.4	234.8	26.4	1.000177
15000.0	586.5	-2.7	-21.0	22.8	754.9	640.9	237.9	27.0	1.000174
15500.0	575.2	-3.9	-22.2	22.6	743.8	639.5	240.0	27.6	1.000171
16000.0	564.1	-5.1	-23.3	22.3	732.8	638.0	241.2	28.0	1.000168
16500.0	553.2	-6.4	-24.5	22.1	722.0	636.5	242.3	28.4	1.000165
17000.0	542.5	-7.6	-25.6	21.9	711.4	635.0	242.4	29.1	1.000163
17500.0	532.0	-8.9	-26.8	21.7	701.0	633.5	242.2	29.7	1.000160
18000.0	521.8	-10.1	-28.0	21.5	690.7	632.0	241.9	30.4	1.000157
18500.0	511.7	-11.3	-29.1	21.3	680.6	630.5	241.6	31.4	1.000155
19000.0	501.8	-12.6	-30.3	21.0	670.6	629.0	241.1	32.5	1.000152
19500.0	491.9	-13.9	-31.5	20.8	660.6	627.4	240.7	33.6	1.000150
20000.0	482.1	-15.2	-32.7	20.5	650.7	625.8	241.2	34.0	1.000147
20500.0	472.5	-16.4	-34.0	20.2	641.0	624.3	242.5	33.7	1.000145
21000.0	463.0	-17.6	-35.2	19.8	631.1	622.8	243.8	33.5	1.000142
21500.0	453.7	-18.3	-36.4	18.6	620.1	622.0	244.7	32.9	1.000140
22000.0	444.6	-19.0	-37.6	17.5	609.3	621.1	245.1	32.0	1.000137
22500.0	435.5	-20.1	-38.6	17.1	599.4	619.8	245.5	31.1	1.000135
23000.0	426.6	-21.3	-39.6	17.3	590.0	618.3	245.8	30.2	1.000133

UPPER AIR DATA
1390020345
WHITE SANDS
TABLE 7 CONT

STATION ALTITUDE 3989.00 FEET MSL
19 MAY 81 0730 IRS MD
ASCENSION NO. 345

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES DEWPOINT CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CURIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES (TN)	SPEED KNOTS	INDEX OF REFRACTION
23500.0	417.9	-22.6	17.6	580.8	616.8	245.8	29.4	1.000130
24000.0	409.3	-23.8	17.8	571.8	615.2	245.8	28.6	1.000128
24500.0	400.9	-25.1	18.0	562.9	613.7	245.9	27.8	1.000126
25000.0	392.6	-25.8	17.6	553.0	612.7	247.0	27.2	1.000124
25500.0	384.5	-26.5	17.1	543.1	611.8	248.2	26.5	1.000122
26000.0	376.4	-27.6	17.1	533.9	610.5	249.5	25.9	1.000120
26500.0	368.5	-28.8	17.3	525.2	609.0	250.1	24.7	1.000118
27000.0	360.7	-29.9	17.5	516.6	607.6	250.6	23.3	1.000116
27500.0	353.1	-31.1	17.7	508.2	606.1	251.2	21.9	1.000114
28000.0	345.6	-32.3	17.9	499.9	604.6			1.000112
28500.0	338.3	-33.6	15.4**	491.9	603.0			1.000110
29000.0	331.0	-35.2	8.8**	484.5	601.0			1.000108
29500.0	323.9	-36.7	2.1**	477.2	599.1			1.000106

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3489.00 FEET NSL
19 MAY 81 0730 HRS MDT
ASCENSION NO. 345

MANDATORY LEVELS
1390020345
WHITE SANDS

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

TABLE 8

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM. PERCENT	WIND DATA	
MILLIBARS	FEET	AIR DEGREES CENTIGRADE	DEWPOINT CENTIGRADE		DIRECTION DEGREES(TN)	SPEED KNOTS
850.0	5010.	11.4	.2	46.	153.9	10.0
800.0	6664.	9.4	-.7	49.	142.3	19.4
750.0	8424.	9.2	-4.4	38.	175.2	17.1
700.0	10301.	8.2	-6.3	35.	217.5	14.5
650.0	12290.	3.1	-8.4	42.	224.5	20.0
600.0	14400.	-1.3	-18.8	25.	234.2	26.3
550.0	16652.	-6.8	-24.8	22.	242.0	28.6
500.0	19066.	-12.8	-30.5	21.	241.0	32.6
450.0	21670.	-18.6	-36.9	18.	244.8	32.6
400.0	24516.	-25.2	-42.5	18.	245.9	27.8
350.0	27661.	-31.6	-48.0	18.	251.4	21.4

GEODETIC COORDINATES
32.40175 LAT DEG
106.31232 LON DEG

SIGNIFICANT LEVEL DATA
1390180092
LC-37

TABLE 9

STATION ALTITUDE 4051.37 FEET MSL
19 MAY 81 0800 HRS MDT
ASCENSION NO. 92

PRESSURE MILLIBARS	GOMETRIC ALTITUDE MSL FEET	TEMPERATURE		REL. HUM. PERCENT
		AIR DEGREES	DEWPOINT CENTIGRADE	
881.0	4051.4	16.8	3.1	40.0
873.2	4299.1	14.3	1.6	42.0
850.0	5043.0	12.1	1.4	48.0
814.2	6221.0	9.1	.0	53.0
774.6	7580.3	9.8	-2.2	43.0
755.4	8264.1	8.8	-3.4	42.0
736.4	8959.1	10.7	-6.1	30.0
700.0	10340.1	8.0	-6.1	36.0
617.4	13693.8	-5	-7.7	58.0
608.6	14071.3	-5	-11.2	44.0
591.2	14831.1	-2.5	-13.3	43.0
565.6	15980.8	-4.9	-24.3	20.0
523.8	17947.8	-9.6	-26.3	24.0
500.0	19121.0	-13.1	-28.1	27.0
451.4	21651.2	-19.7	-31.2	35.0
443.8	22065.8	-19.9	-37.5	19.0
414.0	23753.2	-22.6	-40.8	17.0
400.0	24580.1	-24.9	-42.8	17.0
392.4	25039.1	-25.0	-43.4	16.0
336.4	28658.1	-33.7	-50.2	17.0
304.2	30950.2	-40.1		

STATION ALTITUDE 4051.37 FEET MSL
19 MAY 81 0830 HRS MDT
ASCENSION NO. 92

UPPER AIR DATA
1390180092
LC-37
TABLE 10

GEODETTIC COORDINATES
32.40175 LAT UEG
106.31232 LONG UEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES (TN)	SPEED KNOTS	INDEX OF REFRACTION
4051.4	881.0	16.8	3.1	40.0	1055.0	664.5	140.0	8.9	1.000270
4500.0	860.9	13.7	1.6	43.6	1049.6	660.8	133.7	12.1	1.000265
5000.0	851.3	12.2	1.5	47.7	1036.1	659.1	129.6	15.7	1.000262
5500.0	835.9	10.9	.9	49.9	1022.0	657.6	127.1	19.4	1.000258
6000.0	820.8	9.7	.3	52.1	1008.1	656.1	127.5	21.8	1.000254
6500.0	805.9	9.2	-.4	50.9	991.4	655.6	134.1	21.1	1.000249
7000.0	791.3	9.5	-1.2	47.3	972.6	655.8	143.0	20.3	1.000243
7500.0	776.9	9.8	-2.0	43.6	954.2	656.1	155.5	19.4	1.000238
8000.0	762.8	9.2	-2.9	42.4	938.8	655.4	165.3	18.2	1.000233
8500.0	748.9	9.4	-4.2	37.9	921.1	655.6	173.6	16.4	1.000227
9000.0	735.3	10.6	-6.1	30.2	900.9	656.9	184.7	13.8	1.000219
9500.0	721.9	9.6	-6.1	32.4	887.5	655.8	201.1	11.5	1.000216
10000.0	708.8	8.7	-6.1	34.5	874.4	654.7	209.6	11.6	1.000213
10500.0	695.8	7.6	-6.1	37.0	861.6	653.4	215.4	12.2	1.000211
11000.0	682.9	6.3	-6.2	40.3	849.4	652.0	215.4	13.3	1.000208
11500.0	670.3	5.1	-6.3	43.6	837.5	650.5	214.6	14.4	1.000205
12000.0	657.8	3.8	-6.5	46.9	825.7	649.0	211.2	17.1	1.000203
12500.0	645.6	2.5	-6.8	50.2	814.1	647.5	208.8	19.9	1.000200
13000.0	633.6	1.3	-7.1	53.4	802.7	646.0	210.2	23.7	1.000197
13500.0	621.9	-.0	-7.6	56.7	791.5	644.5	212.5	26.9	1.000194
14000.0	610.3	-.5	-10.5	46.6	778.4	643.8	218.7	28.5	1.000187
14500.0	598.7	-1.6	-12.4	43.4	767.0	642.4	223.8	29.6	1.000183
15000.0	587.4	-2.9	-14.6	39.6	756.1	640.9	227.8	29.1	1.000179
15500.0	576.2	-3.9	-17.0	29.6	744.8	639.5	230.7	28.7	1.000173
16000.0	565.2	-4.9	-24.4	20.0	733.7	638.2	231.6	28.1	1.000168
16500.0	554.3	-6.1	-24.8	21.1	722.7	636.8	232.8	27.9	1.000165
17000.0	543.5	-7.3	-25.3	22.1	712.0	635.3	234.4	28.1	1.000163
17500.0	533.0	-8.5	-25.8	23.1	701.4	633.9	235.4	28.5	1.000160
18000.0	522.7	-9.8	-26.4	24.1	691.0	632.4	236.0	29.2	1.000158
18500.0	512.5	-11.2	-27.1	25.4	681.3	630.6	235.6	29.7	1.000155
19000.0	502.4	-12.7	-27.9	26.7	671.8	628.8	234.8	30.1	1.000153
19500.0	492.4	-14.1	-28.5	28.2	661.8	627.2	234.6	31.2	1.000151
20000.0	482.5	-15.4	-29.1	29.8	651.9	625.6	234.6	32.3	1.000148
20500.0	472.9	-16.7	-29.7	31.4	642.1	624.0	236.2	33.7	1.000146
21000.0	463.4	-18.0	-30.3	32.9	632.5	622.4	237.7	34.7	1.000144
21500.0	454.2	-19.3	-31.0	34.5	623.0	620.8	234.8	33.2	1.000141
22000.0	445.0	-19.9	-36.2	21.5	611.9	620.1	242.2	31.6	1.000138
22500.0	435.9	-20.6	-38.4	18.5	601.2	619.2	244.6	29.3	1.000135
23000.0	427.0	-21.4	-39.3	17.9	590.8	618.2	246.7	27.8	1.000133
23500.0	418.3	-22.2	-40.3	17.3	580.6	617.2	247.0	28.1	1.000130

STATION ALTITUDE 4051.37 FEET MSL
19 MAY 61 0830 IRS MDT
ASCENSION NO. 92

UPPER AIR DATA
1390180092
LC-37

GEODETIC COORDINATES
32.40175 LAT DEG
106.31232 LONG DEG

TABLE 10 CONT

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CM ³ METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES (IN)	SPEED KNOTS	INDEX OF REFRACTION
24000.0	409.8	-23.3	17.0	571.2	615.9	247.9	27.7	1.000128
24500.0	401.3	-24.7	17.0	562.6	614.1	249.6	26.9	1.000126
25000.0	393.0	-25.0	16.1	551.7	613.7	252.2	25.2	1.000124
25500.0	384.8	-26.1	16.1	542.5	612.4	254.1	23.7	1.000122
26000.0	376.7	-27.3	16.3	533.7	610.9	252.1	23.2	1.000120
26500.0	368.8	-28.5	16.4	525.1	609.4	249.9	22.6	1.000118
27000.0	361.0	-29.7	16.5	516.5	607.9	247.4	22.0	1.000116
27500.0	353.4	-30.9	16.7	508.2	606.4	247.8	21.1	1.000114
28000.0	346.0	-32.1	16.8	500.0	604.9	250.3	20.0	1.000112
28500.0	338.7	-33.3	17.0	491.9	603.3	256.7	18.1	1.000110
29000.0	331.4	-34.7	14.5**	484.0	601.7	265.7	16.2	1.000108
29500.0	324.2	-36.1	10.8**	476.3	599.9	265.2	16.0	1.000106
30000.0	317.2	-37.4	7.0**	468.7	598.1			1.000105
30500.0	310.3	-38.8	3.3**	461.3	596.3			1.000103

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 4051.37 FEET MSL
 19 MAY 81
 ASCENSION NO. 92

MANDATORY LEVELS
 1390180092
 LC-37
 TABLE 11

GEODETIC COORDINATES
 32.40175 LAT DEG
 106.31232 LON DEG

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM. PERCENT	WIND DATA	
MILLIBARS	FEET	AIR DEGREES	DEWPOINT CENTIGRADE		DIRECTION DEGREES(TN)	SPEED KNOTS
850.0	5039.	12.1	1.4	48.	129.4	16.0
800.0	6695.	9.3	-7	49.	130.8	21.0
750.0	8452.	9.3	-4.0	39.	172.8	16.5
700.0	10330.	8.0	-6.1	36.	213.5	12.0
650.0	12318.	3.0	-6.7	49.	209.4	18.9
600.0	14428.	-1.5	-12.3	44.	223.3	29.7
550.0	16680.	-6.6	-25.0	21.	233.4	28.0
500.0	19094.	-13.1	-28.1	27.	234.7	30.3
450.0	21694.	-19.7	-32.1	32.	240.6	32.6
400.0	24539.	-24.9	-42.8	17.	249.9	26.8
350.0	27608.	-31.5	-48.4	17.	248.9	20.6

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LONG DEG

SIGNIFICANT LEVEL DATA
1390020340
WHITE SANDS

STATION ALTITUDE 3989.00 FEET MSL
19 MAY 81 0930 HRS MDT
ASCENSION NO. 346

TABLE 12

PRESSURE	GEOMETRIC ALTITUDE MILLIBARS MSL FEET	TEMPERATURE		REL. HUM. PERCENT
		AIR DEGREES	DEWPOINT CENTIGRADE	
882.7	3989.0	17.7	4.3	41.0
850.0	5041.1	13.4	4.3	54.0
785.6	7198.1	7.5	1.1	64.0
776.2	7524.7	8.4	.9	59.0
757.4	8190.8	8.2	.4	58.0
748.4	8515.5	8.3	-.7	53.0
739.0	8860.7	11.3	-.2	45.0
700.0	10341.1	8.2	-2.4	47.0
639.6	12765.6	2.4	-6.4	52.0
622.2	13496.7	.7	-5.5	63.0
605.0	14235.3	-1.0	-6.9	64.0
530.0	17657.0	-9.2	-19.2	44.0
500.0	19129.2	-12.9	-22.1	46.0
466.8	20839.3	-17.0	-27.3	40.0
443.6	22095.0	-18.2	-30.1	34.0
400.0	24604.2	-24.9	-35.9	35.0
385.4	25492.2	-25.9	-37.0	34.0
324.4	29515.1	-36.1	-46.2	34.0

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

UPPER AIR DATA
1390020346
WHITE SANDS

STATION ALTITUDE 3989.00 FEET MSL
19 MAY 81
0930 HRS MDT
ASCENSION NO. 346

TABLE 13

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES CENTIGRADE	REL HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION (TN) DEGREES	SPEED KNOTS	INDEX OF REFRACTION
3989.0	882.7	17.7	41.0	1053.5	665.6	120.0	18.1	1.000272
4000.0	882.4	17.7	41.1	1053.2	665.5	120.1	18.1	1.000272
4500.0	866.7	15.6	47.3	1041.7	663.2	124.8	17.5	1.000270
5000.0	851.3	13.6	53.5	1030.5	660.9	129.8	17.0	1.000268
5500.0	835.9	12.1	56.1	1017.0	659.2	135.0	16.7	1.000264
6000.0	820.7	10.3	58.4	1003.5	657.6	140.3	16.5	1.000259
6500.0	805.9	9.4	60.8	990.2	656.0	145.8	16.5	1.000255
7000.0	791.3	8.0	63.1	977.2	654.3	152.0	16.3	1.000250
7500.0	776.9	8.3	59.4	958.3	654.7	159.3	16.1	1.000245
8000.0	762.7	8.3	58.3	941.2	654.6	166.6	16.2	1.000240
8500.0	748.8	8.3	53.2	924.1	654.5	173.7	15.5	1.000234
9000.0	735.2	11.0	45.2	898.6	657.7	181.5	14.9	1.000228
9500.0	721.9	10.0	45.9	885.7	656.5	189.0	14.6	1.000224
10000.0	706.8	8.9	46.5	872.9	655.2	193.4	14.4	1.000220
10500.0	695.9	7.8	47.3	860.4	653.9	197.8	14.2	1.000216
11000.0	683.0	6.6	48.4	848.3	652.5	200.4	15.4	1.000212
11500.0	670.4	5.4	49.4	836.3	651.0	200.7	18.0	1.000208
12000.0	658.1	4.2	50.4	824.5	649.6	200.9	20.6	1.000204
12500.0	646.0	3.0	51.5	812.9	648.2	202.5	23.2	1.000201
13000.0	634.0	1.9	55.5	801.2	646.8	204.3	26.0	1.000198
13500.0	622.1	.7	63.0	789.5	645.5	205.7	28.7	1.000196
14000.0	610.4	-5	63.7	778.0	644.1	209.3	29.2	1.000193
14500.0	598.8	-1.6	62.5	766.7	642.6	213.0	29.5	1.000188
15000.0	587.4	-2.8	59.5	755.5	641.1	216.5	29.9	1.000184
15500.0	576.1	-4.0	56.6	744.5	639.6	220.0	29.6	1.000179
16000.0	565.1	-5.2	53.7	733.7	638.1	223.5	29.4	1.000175
16500.0	554.3	-6.4	50.8	723.0	636.7	226.0	29.5	1.000171
17000.0	543.6	-7.6	47.8	712.4	635.2	226.4	30.0	1.000168
17500.0	533.2	-8.8	44.9	702.1	633.7	226.9	30.4	1.000164
18000.0	522.9	-10.1	44.5	691.7	632.2	227.4	30.9	1.000161
18500.0	512.6	-11.3	45.1	681.4	630.7	228.0	31.2	1.000158
19000.0	502.6	-12.6	45.8	671.3	629.1	228.6	31.6	1.000155
19500.0	492.6	-13.8	44.7	661.2	627.6	230.9	31.1	1.000153
20000.0	482.8	-15.0	42.9	651.1	626.2	233.8	30.3	1.000150
20500.0	473.2	-16.2	41.2	641.2	624.7	236.8	29.6	1.000147
21000.0	463.8	-17.2	39.2	630.8	623.5	240.9	28.3	1.000144
21500.0	454.4	-17.6	36.8	619.3	622.9	245.4	27.1	1.000141
22000.0	445.3	-18.1	34.5	608.0	622.3	250.3	26.1	1.000138
22500.0	436.3	-19.3	34.2	598.4	620.8	252.0	25.8	1.000136
23000.0	427.4	-20.6	34.4	589.3	619.2	253.4	25.5	1.000134

STATION ALTITUDE 3989.00 FEET MSL
19 MAY 81 0300 HRS MDT
ASCENSION ILO. 346

UPPER AIR DATA
1390020346
WHITE SANDS

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

TABLE 13 CON'T

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	SPEED KNOTS	INDEX OF REFRACTION
23500.0	410.6	-22.0	34.6	580.4	617.6	254.7	25.3	1.000131
24000.0	410.1	-23.3	34.8	571.6	615.9	253.1	24.7	1.000129
24500.0	401.7	-24.6	35.0	562.9	614.2	251.4	24.1	1.000127
25000.0	393.4	-25.3	34.6	552.9	613.3	249.8	23.6	1.000125
25500.0	385.3	-25.9	34.0	542.7	612.6	249.3	22.7	1.000122
26000.0	377.1	-27.2	34.0	534.0	611.1	248.8	21.9	1.000120
26500.0	369.1	-28.5	34.0	525.4	609.5			1.000118
27000.0	361.3	-29.7	34.0	517.0	607.9			1.000116
27500.0	353.6	-31.0	34.0	508.7	606.3			1.000114
28000.0	346.1	-32.3	34.0	500.5	604.7			1.000112
28500.0	338.8	-33.5	34.0	492.5	603.1			1.000110
29000.0	331.6	-34.8	34.0	484.6	601.5			1.000109
29500.0	324.6	-36.1	34.0	476.9	599.9			1.000107

STATION ALTITUDE 3489.00 FEET MSL
19 MAY 61 0930 HRS MDT
ASCENSION NO. 346

MANDATORY LEVELS
1390020346
WHITE SANDS

GEODETTIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

TABLE 14

PRESSURE MILLIBARS	GEOPOTENTIAL FEET	TEMPERATURE		REL. HUM. PERCENT	WIND DATA	
		AIR DEGREES	DEWPOINT CENTIGRADE		DIRECTION DEGREES(TN)	SPEED KNOTS
850.0	5037.	13.4	4.3	54.	130.2	17.0
800.0	6699.	8.9	1.9	62.	148.0	16.5
750.0	8450.	8.3	-5	54.	173.1	15.6
700.0	10331.	8.2	-2.4	47.	196.4	14.3
650.0	12323.	3.4	-5.7	51.	201.8	22.3
600.0	14436.	-1.5	-7.7	63.	212.0	29.5
550.0	16688.	-6.9	-15.6	50.	226.2	29.7
500.0	19102.	-12.9	-22.1	46.	228.8	31.7
450.0	21709.	-17.9	-29.3	36.	247.7	28.6
400.0	24563.	-24.9	-35.9	35.	251.0	24.0
350.0	27712.	-31.6	-42.2	34.		

GEODETIC COORDINATES
32.40175 LAT DEG
106.31232 LONG DEG

SIGNIFICANT LEVEL DATA
1300180093
LC-37
TABLE 15

STATION ALTITUDE 4051.37 FEET MSL
19 MAY 81 1037 HRS MDT
ASCENSION NO. 93

PRESSURE MILLIBARS	GOMETRIC ALTITUDE MSL FEET	TEMPERATURE		REL. HUM. PERCENT
		AIR DEGREES	DEWPOINT CENTIGRADE	
880.9	4051.4	19.5	4.0	36.0
869.6	4414.7	17.4	2.2	36.0
850.0	5051.6	15.4	2.2	41.0
819.4	6067.1	12.3	1.6	48.0
809.6	6398.1	11.5	1.2	49.0
790.0	7069.3	9.9	-9	47.0
770.8	7740.0	8.9	-1.5	48.0
761.2	8081.7	10.0	-2.3	42.0
751.4	8437.0	12.3	-5.2	29.0
741.6	8798.6	12.6	-2.8	34.0
700.0	10378.0	8.3	-5.2	38.0
630.6	13177.6	1.4	-8.9	46.0
613.2	13916.6	-1.1	-7.6	57.0
569.6	15846.2	-3.8	-11.7	54.0
552.4	16640.3	-5.4	-16.3	42.0
527.4	17828.9	-8.5	-18.3	45.0
511.0	18630.9	-11.1	-19.9	48.0
500.0	19179.2	-12.5	-24.4	36.0
470.8	20681.8	-15.6	-33.4	20.0
447.4	21943.1	-17.2	-35.8	18.0
400.0	24665.8	-24.6	-41.5	19.0
332.4	29012.4	-34.6	-49.5	20.0
300.0	31342.9	-40.4		

STATION ALTITUDE 4051.37 FEET MSL
10 MAY 81
ASCENSION NO. 93

UPPER AIR DATA
139010093
LC-37

GEODETIC COORDINATES
32.40175 LAT DEG
106.31232 LON DEG

TABLE 16

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CM ³ METER	SPEED OF SOUND KNOTS	WIND DATA		INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE				DIRECTION DEGREES (TN)	SPEED KNOTS	
4051.4	880.9	19.5	4.0	36.0	1044.9	667.0	110.0	8.0	1.000209
4500.0	860.9	17.1	2.2	36.7	1037.2	664.8	119.6	9.2	1.000203
5000.0	851.6	15.6	2.2	40.6	1024.2	663.0	127.5	10.7	1.000201
5500.0	830.4	14.0	2.0	44.1	1011.3	661.3	133.3	12.4	1.000258
6000.0	821.4	12.5	1.7	47.5	998.5	659.5	137.7	14.3	1.000255
6500.0	806.6	11.3	.9	48.7	985.0	658.0	144.6	15.1	1.000250
7000.0	792.0	10.1	-7.7	47.2	971.5	656.5	156.6	15.0	1.000244
7500.0	777.6	9.3	-1.3	47.6	956.6	655.6	163.9	15.5	1.000240
8000.0	763.5	9.7	-2.1	43.4	937.8	656.1	173.0	16.2	1.000234
8500.0	749.7	12.4	-4.8	29.9	912.8	659.0	177.8	15.8	1.000223
9000.0	730.2	12.1	-3.1	34.5	897.0	658.7	182.4	15.2	1.000222
9500.0	722.8	10.7	-3.8	35.8	885.0	657.1	185.8	14.9	1.000219
10000.0	709.7	9.3	-4.6	37.0	873.3	655.5	186.8	15.0	1.000215
10500.0	690.8	8.0	-5.3	38.3	861.5	654.0	190.7	15.7	1.000212
11000.0	683.9	6.8	-5.9	39.8	849.4	652.5	190.9	17.0	1.000208
11500.0	671.3	5.5	-6.6	41.2	837.4	651.0	189.0	19.3	1.000205
12000.0	658.9	4.3	-7.3	42.6	825.6	649.6	189.3	21.4	1.000201
12500.0	640.7	3.1	-8.0	44.1	814.1	648.1	191.0	23.5	1.000198
13000.0	634.8	1.8	-8.7	45.5	802.7	646.6	194.3	25.6	1.000195
13500.0	622.9	.7	-8.3	50.8	790.7	645.4	197.8	27.8	1.000193
14000.0	611.2	-3	-7.8	56.9	778.7	644.2	200.9	30.0	1.000191
14500.0	599.7	-1.2	-8.8	56.1	766.7	643.1	203.7	32.1	1.000187
15000.0	588.3	-2.2	-9.9	55.3	755.0	641.9	207.2	33.5	1.000183
15500.0	577.2	-3.1	-11.0	54.5	743.4	640.7	211.3	34.5	1.000179
16000.0	560.2	-4.1	-12.6	51.7	732.0	639.5	215.0	34.5	1.000175
16500.0	555.4	-5.1	-15.4	44.1	721.0	638.2	218.6	34.2	1.000170
17000.0	544.7	-6.3	-16.9	42.9	710.4	636.7	220.1	33.5	1.000167
17500.0	534.2	-7.6	-17.7	44.2	700.2	635.1	221.4	32.8	1.000164
18000.0	523.9	-9.1	-18.6	45.6	690.3	633.4	222.1	32.6	1.000161
18500.0	513.6	-10.7	-19.6	47.5	681.1	631.5	223.1	32.3	1.000159
19000.0	503.6	-12.0	-22.9	39.9	671.4	629.7	224.7	31.9	1.000155
19500.0	493.6	-13.2	-26.1	32.6	661.0	628.3	227.1	31.4	1.000151
20000.0	483.8	-14.2	-28.9	27.3	650.6	627.0	230.4	30.9	1.000148
20500.0	474.2	-15.2	-32.1	21.9	640.3	625.8	234.2	29.2	1.000145
21000.0	464.8	-16.0	-34.0	19.5	629.5	624.8	238.7	27.1	1.000142
21500.0	455.5	-16.6	-34.9	18.7	618.4	624.0	243.9	23.4	1.000140
22000.0	446.4	-17.4	-35.9	18.0	607.7	623.1	249.5	20.7	1.000137
22500.0	437.3	-18.7	-36.9	18.2	598.6	621.5	251.9	20.5	1.000135
23000.0	420.0	-20.1	-38.0	18.4	589.5	619.8	251.3	21.4	1.000133
23500.0	419.6	-21.4	-39.0	18.6	580.7	618.1	248.2	23.3	1.000131

STATION ALTITUDE 4051.37 FEET MSL
19 MAY 81 10 37 HRS MDT
ASCENSION NO. 93

UPPER AIR DATA
1390180093
LC-37
TABLE 16 CONT

GEODETIC COORDINATES
32.40175 LAT DEG
106.31232 LONG DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES DEWPOINT CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	SPEED KNOTS	INDEX OF REFRACTION
24000.0	411.1	-22.8	18.8	571.9	616.5	245.6	23.3	1.000128
24500.0	402.7	-24.1	18.9	563.4	614.8	243.1	22.7	1.000126
25000.0	394.3	-25.4	19.1	554.4	613.3	245.3	22.5	1.000124
25500.0	386.0	-26.5	19.2	545.2	611.9	249.3	22.4	1.000122
26000.0	377.9	-27.7	19.3	536.2	610.4	251.0	22.3	1.000120
26500.0	369.9	-28.8	19.4	527.4	609.0	252.0	22.2	1.000118
27000.0	362.1	-30.0	19.5	518.7	607.5	245.4	20.7	1.000116
27500.0	354.5	-31.1	19.7	510.2	606.1	238.2	19.6	1.000114
28000.0	347.0	-32.3	19.8	501.9	604.7	238.3	19.8	1.000112
28500.0	339.7	-33.4	19.9	493.7	603.2	238.5	20.0	1.000110
29000.0	332.6	-34.6	20.0	485.6	601.8	238.9	20.4	1.000109
29500.0	325.3	-35.8	15.8**	477.5	600.2	238.0	21.8	1.000107
30000.0	318.3	-37.1	11.5**	469.6	598.6	238.2	24.0	1.000105
30500.0	311.3	-38.3	7.2**	461.8	597.0			1.000103
31000.0	304.6	-39.5	2.9**	454.2	595.4			1.000101

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 4051.37 FEET MSL
19 MAY 81 10 37 HRS MD T
ASCENSION NO. 93

MANDATORY LEVELS
1390180093
LC-37

GEODETIC COORDINATES
32.40175 LAT (EG
106.31232 LON DEG

TABLE 17

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM. PERCENT	WIND DATA	
MILLIBARS	FEET	AIR DEGREES CENTIGRADE	DEWPOINT		DIRECTION DEGREES(TN)	SPEED KNOTS
850.0	5048.	15.4	2.2	41.	128.1	10.9
800.0	6720.	10.7	.2	48.	149.3	15.0
750.0	8481.	12.3	-4.8	30.	177.6	15.8
700.0	10368.	8.3	-5.2	38.	190.2	15.5
650.0	12359.	3.4	-7.8	44.	191.0	22.9
600.0	14471.	-1.2	-8.8	56.	203.6	32.0
550.0	16731.	-5.7	-16.4	42.	219.4	33.9
500.0	19152.	-12.5	-24.4	36.	225.3	31.8
450.0	21767.	-17.0	-35.5	18.	247.6	21.3
400.0	24624.	-24.6	-41.5	19.	242.5	22.6
350.0	27768.	-31.8	-47.3	20.	238.3	19.7
300.0	31280.	-40.4				

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

